NIEHS

DERT Science Retreat:
Molecular Basis of Environmental Disease

Monday, December 4:

7:30 a.m.	Transportation provided to Pine Needles Lodge departing from lobby of NIEHS main campus at 111 Alexander Drive
9:30 a.m.	Arrival and Check-in
10:00 a.m.	Opening Session: Purpose and Goals Anne Sassaman, NIEHS
10:30 a.m.	**Session 1: Molecular Epidemiology and Role of Polymorphisms in Populations** Chair, Gwen Collman, NIEHS
	John Wiencke, University of California, San Francisco *Molecular Epidemiology of Lung Cancer in Minorities*
	Robert Millikan, University of North Carolina, Chapel Hill *Strategy for Incorporating Biologic Function and Allele Frequency Data into Studies of Genetic Polymorphisms and Common Diseases*
	Clement Furlong, University of Washington, Seattle *Structure and Function of Human PON1 Polymorphism*
12:00 p.m.	**Discussion: Molecular Epidemiology and Polymorphisms** Facilitator, Jose Velazquez, NIEHS

What new tools and/or methods are needed by epidemiologists to better understand the role of multigene pathways in gene environmental interaction?

How can NIEHS help take a leadership role in the use of gene variants to identify susceptible populations to diseases linked to environmental toxicants? What diseases are the best candidates for gene-environment interactions?

What are the best approaches for the NIEHS/NIH to take to facilitate the sharing of biological specimens and genomic data for molecular epidemiologic studies?

1:00 p.m.	Buffet Lunch

2:00 p.m. **Session 2: Imaging in Environmental Toxicology**
Chair, Cindy Lawler, NIEHS

Simon Watkins, University of Pittsburgh
From Little Animals to Moving Molecules; and Overview of Imaging meeting at NIEHS in July

Peter Fox, University of Texas, San Antonio
Whole Animal Imaging for Cancer Analysis

Bruce Pitt, University of Pittsburgh
Lung as a Model for Imaging

Tomas Guilarte, The Johns Hopkins University
Brain as a Model for Imaging

3:45 p.m. **Discussion: Linking Imaging with Environmental Toxicology**
Facilitator, Claudia Thompson, NIEHS

Of the imaging technologies that are currently being used or in development, what do you see as the most promising approaches in advancing environmental health research?

In terms of exposure assessment in human populations, is there a role for imaging technologies to advance this field of investigation? If so, expand on this role.

Given the tremendous potential of neuroimaging for elucidating brain-behavior relationships and cognitive function, what are the prospects for translating testing paradigms developed recently for use in humans to functional brain assessments in small animals that are awake?

6:00 p.m. Buffet Dinner

7:30 p.m. **Session 3: Cellular and Molecular Pathophysiology: Intergenerational Toxicity and Fetal Programming**
Chair, Michael McClure, NIEHS

Keynote address:
Peter Nathanielsz, Cornell University
Fetal Origins of Health and Disease

Tuesday, December 5:

6:30 a.m.	Continental Breakfast
9:00 a.m.	**Session 3 (continued).** Chair, George Malindzak, NIEHS
	Kent Pinkerton, University of California, Davis *Mammalian Respiratory System Development and Asthma*
	David Abbott, University of Wisconsin, Madison *Prenatal Androgen Exposure and Impaired Insulin Secretion; Impaired Gonodotroph Functions*
	Gail Prins, University of Illinois, Chicago School of Medicine *Prenatal DES Impaired Prostate Development*
10:30 a.m.	**Discussion: Cellular and Molecular Mechanisms of Pathophysiology in relation to Intergenerational toxicity and fetal programming** Facilitator, Jerrold Heindel, NIEHS

Given what we currently know, which of the current adult onset diseases have the strongest research potential as leads for disclosing a fetal programming basis for the expression of the disease?

What are the possible mechanisms that underlie the environmental factor based fetal programming of disease?

What models and approaches might be best utilized to explore these mechanisms to illuminate the exposure-disease linkage?

11:30 a.m.	Closing Remarks
12:00 p.m.	Lunch
1:00 p.m.	Staff debriefing
2:30 p.m.	Transportation provided to RTP and RDU airport

National Institute of Environmental Health Sciences
Division of Extramural Research and Training
Science Retreat: Molecular Basis of Environmental Disease

Invited Speakers

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